

*TIGRINA (SALAMANDRA) GREEN, 1825: PROPOSED VALIDATION
UNDER THE PLENARY POWERS (AMPHIBIA, CAUDATA). Z.N.(S.)1460*

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The species of salamander widely distributed in North America and known by the common name of Tiger Salamander has been referred to for over a century, almost without exception, by the specific name *tigrinum*, the proper generic combination for which is *Ambystoma tigrinum* (ex *Salamandra tigrina* Green, 1825, *J. Acad. nat. Sci. Philad.* 5 : 116, type-locality Moorestown, Burlington Co., New Jersey, type unknown *fide* Dunn, *Copeia*, 1940 : 156). An enormous literature has grown about this name, including much experimental as well as systematic work. It would be a very unfortunate mistake to allow this name to be changed after such a long history of extensive and unchallenged use.

2. At least three synonyms, however, antedate *Ambystoma tigrinum* (Green, 1825). The earliest is *Siren operculata* Beauvois (1799, *Trans. amer. philos. Soc.* 4 : 277-281, figs. 1-4), the type-locality for which is stated as "a swamp in Jersey near the Delaware, not very distant from the Middle Ferry opposite the city of Philadelphia". The type is unknown. The second is *Proteus Neo Caesariensis* Green (1818, *J. Acad. nat. Sci. Philad.* 1 : 358), type-locality New Jersey, restricted to "vicinity of Princeton" by Schmidt (1953, *Checklist N. Amer. Amphs. Repts.* : 49), type unknown. The third is an objective synonym of *Siren operculata* Beauvois, since it was published as a substitute for it : *Axolotus philadelphicus* Jarocki (1822, *Zoologia*, 3 : 179). All three earlier names are available and, if they can be conclusively demonstrated to be synonyms of *Ambystoma tigrinum* Green, authorized use of the latter name will require suppression of the earlier names under the plenary powers of the Commission.

3. Dunn (1926, *Salamanders, Family Plethodontidae* : 272) synonymized *Siren operculata* Beauvois, 1799, with a question, with *Pseudotriton r. ruber* (Sonnini, 1802), explaining that he was uncertain of its allocation. Cope (1889, *Bull. U.S. nat. Mus.* 34 : 179) made the same, but unquestioned allocation. Dunn implied he was following the opinion of Say (1818, *J. Acad. nat. Sci. Philad.* 1 : 405). Say actually stated only that *Proteus neocaesariensis* Green, "judging from the description", is the same as *Siren operculata* Beauvois, leaving as a question with what species the name *operculata* should be allocated although he did point out that Shaw (1802, *Gen. Zool.* 3(2) : 614) suggested a relationship with *Siren pisciformis*=*Ambystoma mexicanum*. With this thought we fully concur. Allocation of either *neocaesariensis* or *operculata* to a plethodontid salamander, such as *Pseudotriton*, is completely untenable. It is true that more costal grooves (16) are shown in Beauvois's figure than occur in *Ambystoma tigrinum*, and the same number as in *P. r. ruber*, but the size shown in the figure and the form of head and finned body are unmistakably

diagnostic of *tigrinum* and certainly of no other species of the north-eastern United States. Furthermore, the habitat—a “swamp”—is appropriate for the Tiger Salamander, not for *Pseudotriton*, which is restricted to springs and fresh-flowing, clear streams. One of us has gained thorough familiarity with *Ambystoma*, having reviewed the characteristics and classification of all species of the entire family (Tihen, 1958, *Bull. Florida State Mus.* 3 : 1-50, figs. 1-11), and having repeatedly dealt with living and fossil types related to *tigrinum*; with this background of experience we can recognize no question whatever in allocation of *operculata*, on the basis of Beauvois's figures, to *tigrinum*. The late S. C. Bishop, outstanding expert on American salamanders (1947, *Handbook Salamanders U.S. Canada*), expressed to both of us his emphatic certainty of the same allocation. The only contrary indications are the numerous costal grooves (the same as in *P. ruber*). We can say only that the grooves must be incorrectly shown. We harbor no doubts whatsoever that *operculata* is a synonym of *tigrinum*.

4. Green's description of *neocaesariensis* is very brief and unillustrated, but the large size mentioned (“between four and five inches”) and comparison with *Necturus maculosus**, *Proteus anguineus* and *Ambystoma mexicanum* effectively eliminate all species but *tigrinum* from consideration.

5. It is difficult adequately to account for Cope's (*loc. cit.*) reference of both *neocaesariensis* and *operculata* to *P. r. ruber*, a species offering almost no grounds for such synonymy, especially since Shaw (*op. cit.*) and Say (*op. cit.*) correctly allocated them. Dunn (*loc. cit.*) was no doubt impelled by conservatism to question allocation of *operculata* and to follow Cope in allocations of *neocaesariensis*, since *operculata*, 1799, antedates even *P. r. ruber*, 1802, and both names antedate *tigrinum*, 1825.

6. Curiously, *Salamandra tigrina* Green has never been designated the type of any genus, although a number of its synonyms, or synonyms of subspecies of it, have been so designated. Likewise, *Siren operculata* is the type of no genus. However, *Axolotus philadelphicus* is a potential type of *Axolotus* Jarocki (1822 : 179). This genus originally received three species, none designated as type then or subsequently : “*Axolotus pisciformis* (*Siren pisciformis* Shaw); *Axolotus lacertinus* (*Siren quadrupes* Bart.); *Axolotus philadelphicus* (*Sirene operculée* Beauv.)”. *Siren quadrupes* Barton is a *nomen nudum* since it was apparently first printed in Jarocki's work (Barton described an animal that must have been *Amphiuma*, but did not name it; if the name were to be considered available as of Jarocki it would be a junior synonym of *Amphiuma means* Garden, 1821); and *Siren operculata* Beauvois, 1799 = *Ambystoma tigrinum* Green, 1825. The diagnosis for *Axolotus* (kindly translated for us by Peter S. Chrapliwy) leaves no doubt that *Amphiuma* figured little, if at all, in Jarocki's concept of the genus, which could apply equally well to either of the other species. Since the “axolotl” has long been accepted as the Mexican

* It is noteworthy that Green's “*P. [roteus] tetradactylus*” is the earliest use of a latinized form of Lacépède's “*Protee tetradactyle*” readily identifiable as *Necturus maculosus* (Rafinesque 1818). Green's usage, although identifiable in context with the literature of the time, does not make the name available since no author or other reference was given by him to pin the name down.

species (*Siren pisciformis* Shaw=*Ambystoma mexicanum* (Shaw)) and neotenic forms related thereto, we regard it most appropriate to consider the Mexican species as type. We accordingly designate as type of *Axolotus* Jarocki, 1822 his species *Axolotus pisciformis* in turn derived from *Siren pisciformis* Shaw, 1802, a junior synonym of *Gyrinus mexicanus* Shaw, 1789=*Ambystoma mexicanum* (Shaw). With this action the name *operculata* is removed from consideration as type of any genus.

7. With establishment of *Siren operculata* Beauvois, 1799 and *Proteus neocaesariensis* Green, 1818, as senior synonyms of *Salamandra tigrina* Green, 1825, we request the Commission :

- (1) to use its plenary powers to suppress the following specific names for the purposes of the Law of Priority but not for those of the Law of Homonymy ;
 - (a) *operculata* Beauvois, 1799, as published in the binomen *Siren operculata* ;
 - (b) *philadelphicus* Jarocki, 1822, as published in the binomen *Axolotus philadelphicus* ;
 - (c) *neocaesariensis* Green, 1818, as published in the combination *Proteus Neo Caesariensis* ;
- (2) to place the specific name *tigrina* Green, 1825, as published in the binomen *Salamandra tigrina*, on the Official List of Specific Names in Zoology ;
- (3) to place the following specific names, as suppressed under the plenary powers in (1) above, on the Official Index of Rejected and Invalid Generic Names in Zoology :—
 - (a) *operculata* Beauvois, 1799, as published in the binomen *Siren operculata* ;
 - (b) *philadelphicus* Jarocki, 1822, as published in the binomen *Axolotus philadelphicus* ;
 - (c) *neocaesariensis* Green, 1818, as published in the combination *Proteus Neo Caesariensis*.